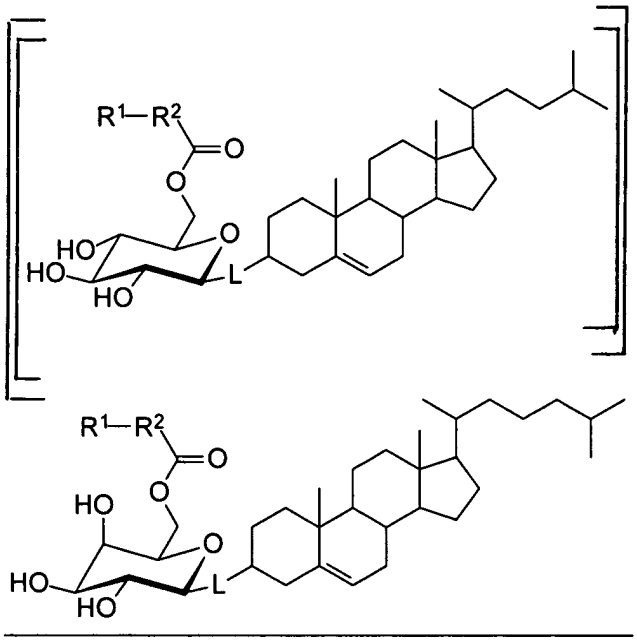
Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A compound of formula A below, or a pharmaceutically acceptable salt or complex thereof, wherein the compound of formula A comprises



wherein R^1 is selected from azido, amino, substituted amino, hydrazino, hydrazide, semicarbazide, or carbohydrazide;

R^2 is selected from a saturated or unsaturated carbon chain containing 1 to 25 carbon atoms, or a saturated or unsaturated substituted carbon chain containing 1 to 25 carbon atoms; and

L is selected from O, N, S, P, or an alkylene radical.

2. (Original) The compound of claim 1, wherein R^1 is selected from azido, amino or hydrazide; R^2 is a saturated or unsaturated carbon chain containing 5 to 20 carbon atoms; and L is O.

3. (Original) The compound of claim 2, wherein the compound is chemically synthesized.

4. (Original) The compound of claim 1, wherein L is O.

5. (Original) A conjugate comprising the compound of claim 1 and at least one protein carrier, wherein the compound of claim 1 is covalently bound to the protein carrier.

6. (Original) A conjugate comprising the compound of claim 2 and at least one protein carrier, wherein the compound of claim 2 is covalently bound to the protein carrier.

7. (Original) The conjugate of claim 5, wherein the compound of claim 1 is covalently bound to the protein carrier via the R^1 group.

8. (Original) The conjugate of claim 6, wherein the compound of claim 2 is covalently bound to the protein carrier via the R^1 group.

9. (Previously presented) The conjugate of claim 5, wherein the protein carrier comprises bovine serum albumin, ovalbumin, keyhole limpet hemocyanin, purified protein derivative of tuberculin, tetanus toxoid, cholera toxoid, diphtheria toxoid, *Pseudomonas aeruginosa* toxoid, *Clostridium* toxoid, Shiga toxin, hepatitis B antigen, or a sequence of amino acids of a *Borrelia burgdorferi* polypeptide.

10. (Previously presented) The conjugate of claim 6, wherein the protein carrier comprises bovine serum albumin, ovalbumin, keyhole limpet hemocyanin, purified protein derivative of tuberculin, tetanus toxoid, cholera toxoid, diphtheria toxoid, *Pseudomonas aeruginosa* toxoid, *Clostridium* toxoid, Shiga toxin, hepatitis B antigen, or a sequence of amino acids of a *Borrelia burgdorferi* polypeptide.

11. (Original) A method for making the compound of claim 1, wherein R^1 is azido and L is O, the method comprising:

reacting a galactosyl halide with cholesterol to provide a galactosyl-cholesterol; and

reacting an azidoacyl acid with the galactosyl-cholesterol to provide the compound of claim 1.

12. (Original) A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 1 and a pharmaceutically acceptable carrier.

13. (Original) A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 2 and a pharmaceutically acceptable carrier.

14. (Original) A pharmaceutical composition comprising a therapeutically effective amount of the conjugate of claim 5.

15. (Original) A pharmaceutical composition comprising a therapeutically effective amount of the conjugate of claim 6 and a pharmaceutically acceptable carrier.

16. (Original) A method of inducing an immune response to *B. burgdorferi* in a subject, comprising administering a therapeutically effective amount of the compound of claim 1 to the subject, thereby inducing the immune response.

17. (Original) A method of preventing or treating Lyme disease in a subject, comprising administering to a subject a therapeutically effective amount of the compound of claim 1, thereby preventing or treating Lyme disease in the subject.

Claims 18-31 (Canceled).

32. (New) The compound of claim 2, wherein R^1 is azido, and R^2 is a saturated carbon chain containing 5 to 20 atoms.

33. (New) A conjugate comprising the compound of claim 32 and at least one protein carrier, wherein the compound of claim 32 is covalently bound to the protein carrier via the R^1 group.

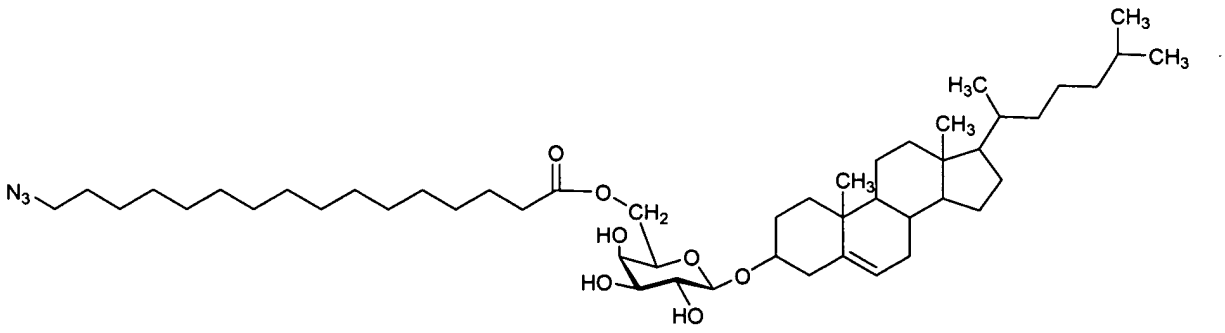
34. (New) The method of claim 16, wherein L is O.

35. (New) The method of claim 34, wherein R^1 is selected from azido, amino or hydrazide; and R^2 is a saturated or unsaturated carbon chain containing 5 to 20 carbon atoms.

36. (New) The method of claim 17, wherein L is O.

35. (New) The method of claim 35, wherein R^1 is selected from azido, amino or hydrazide; and R^2 is a saturated or unsaturated carbon chain containing 5 to 20 carbon atoms.

36. (New) A compound, or a pharmaceutically acceptable salt or complex thereof, having a structure represented by the formula:



37. (New) A conjugate comprising the compound of claim 36 and at least one protein carrier, wherein the compound of claim 36 is covalently bound to the protein carrier.

38. (New) A method of inducing an immune response to *B. burgdorferi* in a subject, comprising administering a therapeutically effective amount of the compound of claim 36 to the subject, thereby inducing the immune response.